

Measures of Central Tendency

Date: _____

Definitions:

The _____ of a set of data is calculated by finding the sum of the data and dividing by the number of pieces of data.

The _____ of a set of data is the middle value when the data are arranged in numerical order.

If the number of pieces of data is even, the median is the arithmetic average of the two middle values.

The _____ of a set of data is the number that occurs most frequently in a set of data.

The _____ is not a measure of central tendency. It is the difference between the highest and the lowest values in a set of data.

1) Find the mean, median, mode and range for the set of data.

15 18 11 21 18 14 12 19 11 16

Mean =

Median =

Mode =

Range =

2) Find the mean, median, mode and range for the set of data.

80 min, 1 hour, 65 min, 50 min, 3/4 hour

Mean =

Median =

Mode =

Range =

- 3) The points scored by a school ski team during the past 8 competitions are:
219, 186, 170, 73, 175, 180, 73, 196.

Mean =

Median =

Mode =

Range =

Which measure of central tendency best represents the data? Explain.

- 4) The mean of the numbers 8, 12, 13, 15, 17, 19 and y is 16. Find y .

- 5) Andrea's test scores are 42%, 78%, 93% and 63%. All tests are weighted equally. What must Andrea earn on the next test to have an overall average of 75%?

- 6) Write 5 numbers that have a mean of 12 and a median of 13.

- 7) Write 5 numbers that have a mean of 9 and a mode of 10

Measures of Central Tendency: Homework

- 1) Is each statement always true, sometimes true, or never true?
- a) If the mean, median and mode are close in value, then these values describe the sample population fairly accurately.
 - b) There is more than one mode for a set of data.
 - c) The mean is a number that is not in the initial set of data.
 - d) The median best reflects the largest number of readers of newspaper.
 - e) The mode best reflects your bowling ability.
 - f) If a list of numbers has a mode, it is one of the numbers in the list.
 - g) The median of a list of whole numbers is a whole number.
 - h) The mean of a list of numbers is one of the numbers in the list.
 - i) The mean, median, and mode of a list of numbers are not equal.
- 2) Find the mean, median, mode, and range for each set of data.
- a) 13, 21, 16, 25, 18, 28, 32, 31
 - b) 80, 40, 35, 62, 11, 80
- 3) The table gives the lengths of the drives of two golfers in a driving contest. Who hits a longer drive, on the average, Veronica or Natasha?

	Length of Drive (metres)						
Veronica	260	302	268	260	250	288	291
Natasha	285	257	282	252	290	280	250

- 4) The batting averages of Havergal's Senior Baseball team were:

0.263, 0.309, 0.350, 0.207, 0.256, 0.278, 0.378, 0.283, 0.274, and 0.229

Determine the mean and median of the data. Would the mean necessarily be the team's batting average? Why?

- 5) A bowler had these scores after eight games of 5-pin bowling:

299, 321, 317, 396, 245, 390, 340, 272

- a) Find the mean score and the median score.
 - b) In two more games, the bowler scored 173 and 216. Find the mean score and the median score of the ten games.
- 6) Your marks (out of 25) on five tests are 19, 18, 22, 17, and 23. What mark would you have to get on the next test to have a mean mark of at least 80.0% on the six tests?

- 7) The table shows the salaries of all the employees in a small company.

Position	Number	Annual Salary (\$)
President	1	100 000
Vice-President	1	60 000
Senior Staff	4	40 000
Junior Staff	2	30 000
Intern	1	10 000

Complete the following:

- a) List all 9 salaries in ascending or descending order.
- b) Find the mean, median, and mode.
- c) Which measure of central tendency is closest to the centre of the data? Explain.
- d) Drop the highest salary. Find the mean, median, and mode of the remaining eight salaries.
- e) Drop the lowest salary. Find the mean, median, and mode of the remaining eight salaries.
- f) Which measure of central tendency is most affected by the extreme (highest and lowest) salary values?
- g) Which measure of central tendency is least affected by the extreme (highest and lowest) salary values?

2a) Mean = 23, median = 23 mode = none, range = 19 b) Mean = 51.3, median = 51 mode = none, range = 69
3) Mean_{Veronica} = 274.1 Median_{Veronica} = 268 Mean_{Natalie} = 270.9
 Median_{Natalie} = 280
4) Mean = 0.2827 Median = 0.276 5a) Mean = 322.5, Median = 319 b) mean = 296.9, median = 308
6) 21 7b) Mean \$43333.33, Median = \$40,000, Mode = \$40 000
7d) Mean = \$32 222.22, Median = \$40 000, Mode \$40 000
7e) Mean = \$42 222.22, Median = \$40 000, Mode \$40 000 8) Mark = 92 9) 121 10) 7 11) not telling
12) ditto